

S
628.16 Polar River
426prus Cooperative
Monitoring
Arrangement ...
1985 data exchange,
4th fr United States
contribution

2/26
P&F
Plains
P&F
CPL
file

POPLAR RIVER

COOPERATIVE MONITORING

ARRANGEMENT

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FOURTH QUARTER DATA EXCHANGE

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INTRODUCTION

1985 - FOURTH QUARTER DATA EXCHANGE POPLAR RIVER BASIN

The Poplar River Bilateral Monitoring Committee was authorized by the Governments of Canada and the United States under the Poplar River Cooperative Monitoring Arrangement dated September 23, 1980. The Committee is composed of representatives of the Governments of the United States, State of Montana, Canada, and Province of Saskatchewan. In addition to the representatives of governments, two ex officio members who are local representative of the State of Montana and Province of Saskatchewan participate in activities of the Committee.

One responsibility of the Committee includes the on-going quarterly exchange of results of water quantity, water quality and air quality monitoring programs. The programs are being conducted in Canada and the United States at or near the International Boundary by cooperative monitoring agencies in accordance with the Technical Monitoring Schedules. Monitoring information is to be transmitted by each Committee co-chairman to his counterpart co-chairman within a reasonable period after the termination of each quarter. In addition, pre selected parties are to receive copies of the quarterly exchange.

This package represents information collected by United States sources for the Poplar River basin during the fourth quarter of 1985. Included are data for surface water quantity and quality, ground water levels. Air quality monitoring was not done during the reporting period.

STREAMFLOW MONITORING

Responsible Agency: U.S. Geological Survey

Daily mean discharge or levels and instantaneous monthly extremes
as normally published in surface water data publications.

<u>No. on Map</u>	<u>USGS Station No.</u>	<u>Station Name</u>
1	06178000	Poplar River at International Boundary

Responsible Agency: Environment Canada

2	06178500	East Poplar River at International Boundary
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HYDROMETRIC GAUGING STATIONS



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POPLAR RIVER BASIN

061 SECURE - OCEANSIDE - LOCAL INTERNATIONAL - 00000

DAYS (WEEKS) IN CHART - 52 WEEKS = 1 CALENDAR YEAR
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			60	22	9.2	15	.14	.06	.03	2.0		
2			50	22	8.7	16	.13	.06	.03	2.1		
3			30	23	8.0	13	.13	.08	.03	3.0		
4			15	21	8.1	11	.17	.07	.03	4.6		
5			8.0	31	6.9	9.8	.10	.05	.05	4.4		
6				4.0	37	5.9	8.4	.11	.04	.05	3.9	
7				3.0	28	5.6	6.7	.09	.05	.27	4.2	
8				3.0	21	5.0	5.9	.08	.06	.30	5.8	
9				7.0	17	4.8	4.4	.07	.04	.12	5.5	
10				40	17	5.1	4.2	.07	.04	.08	4.7	
11			80	17	5.7	4.2	.07	.06	.11	6.7		
12			90	16	5.7	3.4	.08	.07	.17	9.4		
13			100	14	6.3	2.7	.06	.05	.24	9.4		
14			140	13	7.6	2.2	.05	.04	.92	10		
15			130	12	7.5	1.7	.04	.05	.88	11		
16			150	12	7.2	1.2	.04	.10	.80	10		
17			160	12	7.1	.77	.09	.07	.71	9.1		
18			171	11	6.3	.51	.13	.08	1.1	7.9		
19			166	13	5.2	.39	.11	.07	1.6	7.4		
20			177	19	4.4	.30	.04	.05	1.6	6.9		
21			141	18	3.8	.28	.07	.06	1.8	6.5		
22			100	15	3.4	.25	.05	.05	1.9	6.3		
23			62	13	3.0	.23	.13	.06	2.0	6.1		
24			53	14	2.7	.23	.29	.06	2.1	5.5		
25			46	15	3.4	.17	.08	.05	2.0	5.2		
26			35	14	3.8	.16	.06	.03	2.2	5.0		
27			26	13	3.8	.17	.07	.02	2.0	4.8		
28			20	11	4.4	.15	.06	.04	2.0	4.9		
29			18	11	4.3	.16	.07	.04	2.0	4.8		
30			16	10	6.0	.16	.07	.04	2.0	4.8		
31			22	---	13	---	.06	.04	--	4.8		
TOTAL	2123.0	512	181.9		113.73	2.81	1.68	29.12	186.7			
MEAN	68.6	17.1	5.87		3.79	.09	.05	.97	6.02			
MAX	177	37	13		16	.29	.10	2.2	11			
MIN	3.0	10	2.7		15	.04	.02	.03	2.0			
AC-FT	4210	1020	361		226	5.6	3.3	58	370			

POPLAR RIVER BASIN

DRAINS AREA 1,000 SQ. MILES

CROSS RIVER AT 100 FT

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	2.5	2.4	3.4	3.5	5.0	6.5	2.6	2.5	2.6	2.8	3.0	2.5
2	2.6	2.3	3.1	3.9	5.0	4.7	2.6	3.0	2.6	3.0	3.1	2.5
3	2.8	2.2	2.6	3.6	5.1	4.3	2.5	3.1	2.6	3.3	3.0	2.4
4	2.9	2.2	2.4	3.4	5.5	3.8	2.4	2.9	2.7	3.3	3.0	2.6
5	2.8	2.0	2.3	3.4	5.9	3.5	2.4	2.7	2.9	2.9	3.3	2.6
6	2.9	2.0	2.4	3.4	5.7	3.4	2.4	2.5	3.0	2.9	3.0	2.7
7	2.9	2.0	2.5	3.4	5.0	3.1	2.4	2.4	3.5	3.2	3.0	2.8
8	2.7	1.9	2.6	3.2	5.2	3.7	2.4	2.6	3.3	3.2	2.9	2.9
9	2.8	1.9	2.8	3.1	5.0	3.3	2.2	2.5	3.1	3.2	2.8	2.8
10	2.7	1.9	2.9	3.1	7.8	3.2	2.3	2.4	3.0	3.2	2.7	2.8
11	2.4	1.9	3.0	3.1	10	3.2	2.3	2.5	2.9	3.2	2.7	2.6
12	2.7	1.8	3.0	3.2	12	2.9	2.3	2.9	2.8	3.4	2.8	2.6
13	2.8	2.0	3.2	3.1	13	3.0	2.3	3.0	3.2	3.4	2.9	2.3
14	2.9	2.1	3.3	3.1	8.7	3.0	2.3	2.7	3.0	3.5	2.9	2.6
15	2.9	2.3	3.2	3.1	8.8	2.8	2.2	2.8	3.0	3.4	2.9	2.6
16	2.9	2.4	3.2	2.8	8.2	3.3	2.3	3.2	2.8	3.4	2.9	2.7
17	3.0	2.4	3.4	3.1	8.2	3.3	2.2	3.4	2.9	3.3	2.8	2.7
18	2.9	2.3	3.6	3.1	8.2	2.8	2.6	3.0	2.9	3.2	2.7	2.7
19	2.8	2.4	3.4	3.4	8.0	2.7	2.5	2.8	3.1	3.1	2.7	2.8
20	2.7	2.5	3.3	4.3	7.9	2.8	2.4	2.7	2.9	3.1	2.5	2.8
21	2.7	2.6	3.3	3.7	8.1	2.7	2.3	3.1	3.0	3.0	2.6	2.9
22	2.7	2.7	3.1	3.3	8.0	2.5	2.3	3.0	3.2	3.0	2.6	2.9
23	2.8	2.7	3.1	3.1	8.1	2.5	2.4	3.0	3.0	3.0	2.4	3.0
24	2.9	4.0	3.3	3.8	8.2	2.6	2.5	2.9	2.9	2.9	2.3	2.8
25	2.9	6.7	3.4	4.6	11	2.7	3.0	2.7	3.0	3.1	2.4	2.8
26	2.9	3.8	3.1	5.1	8.6	2.6	2.7	2.7	3.1	3.2	2.4	3.3
27	2.9	2.9	2.8	5.4	8.7	2.5	2.6	2.5	3.0	2.9	2.3	3.0
28	2.9	3.2	3.0	5.2	8.9	2.6	2.4	2.7	2.7	3.2	2.2	2.9
29	2.7	---	2.9	5.2	8.3	2.6	2.4	2.9	2.7	2.8	2.2	2.9
30	2.6	---	2.9	5.0	12	2.7	2.5	2.8	2.8	3.0	2.3	2.9
31	2.5	---	3.1	---	10	---	2.4	2.8	---	3.1	---	2.8
TOTAL	86.1	71.5	93.6	110.7	248.1	95.3	75.1	86.7	88.2	97.2	81.3	85.2
MEAN	2.78	2.55	3.02	3.69	8.00	3.18	2.42	2.80	2.94	3.14	2.71	2.75
MAX	3.0	6.7	3.6	5.4	13	6.5	3.0	3.4	3.5	3.5	3.3	3.3
MIN	2.4	1.8	2.3	2.8	5.0	2.5	2.2	2.4	2.6	2.8	2.2	2.3
AC-FT	171	142	186	220	492	189	149	172	175	193	161	169

SURFACE WATER QUALITY MONITORING

Station Location

Responsible Agency: U.S. Geological Survey

No. on Map	USGS Station No.	Station Name
1	06178000	Poplar River at Internationel Boundary
2	06178500	East Poplar River at Internationel Boundary
3	06179000	East Poplar River near Scobey

PARAMETERS

WATSTORE*

Sampling Frequency

Code	Parameter	Analytical method	No.	1	2	3
00410	Alkalinity-field	Elect. Titration	M	M	M	
90410	Alkalinity-lab	Elect. Titration	M	M	M	
01106	Aluminum-diss	AA		SA	SA	SA
00610	Ammonia-tot	Colorimetric	M	M	M	
00625	Ammonia+Org N-tot	Colorimetric	M	M	M	
01000	Arsenic-diss	AA, hydride		SA	SA	SA
01002	Arsenic-tot	AA, hydride	A	A	A	
01010	Beryllium-diss	AA		SA	SA	SA
01012	Beryllium-tot/rec	AA-Persulfate	A	A	A	
01020	Boron-diss	Colorimetric	M	M	M	
01025	Cadmium-diss	AA		SA	SA	SA
01027	Cadmium-tot/rec	AA-persulfate	A	A	A	
00915	Calcium	AA		M	M	M
00680	Cerbon-tot Org	Wet Oxidetion		SA	SA	SA
00940	Chloride-diss	Ion chromatography	M	M	M	
01030	Chromium-diss	AA		SA	SA	SA
01034	Chromium-tot/rec	AA-persulfate	A	A	A	
00080	Color	Electrometric, visual	M	M	M	
00095	Conductivity	Wheelstone Bridge	M	D	M	
01040	Copper-diss	AA		SA	SA	SA
01042	Copper-tot/rec	AA-persulfate	A	A	A	
00061	Discharge-inst	Direct measur.	M	M	M	
00950	Fluoride	Electrometric	M	M	M	
01046	Iron-diss	AA		M	M	M
01045	Iron-tot/rec	AA-persulfate	A	A	A	
01049	Lead-diss	AA		SA	SA	SA
01051	Lead-tot/rec	AA-persulfate	A	A	A	
00925	Magnesium-diss	AA		M	M	M
01056	Manganese-diss	AA		SA	SA	SA
01055	Manganese-tot/rec	AA-persulfate	A	A	A	
01065	Nickel-diss	AA		SA	SA	SA
01067	Nickel tot/rec	AA-persulfate	A	A	A	
00615	Nitrite-tot	Ion-chromatography	M	M	M	
00630	Nitrite+Nitrite-tot	Colorimetric	M	M	M	
00300	Oxygen-diss	Winkler/meter	M	M	M	
70507	Phos, Ortho-tot	Colorimetric	M	M	M	
00400	pH	Electrometric	M	N	M	
00665	Phosphorous-tot	Colorimetric	M	N	M	
00935	Potassium-diss	AA		M	M	M
00931	SAR	Calculated	M	M	M	
80154	Sediment-conc.	Filtration-grevimetric	M	M	M	
80155	Sediment-load	Calculated	M	M	M	
01145	Selenium-diss	AA, hydride		SA	SA	SA
01147	Selenium tot/rec	AA, hydrida	A	A	A	
00955	Silica	Colorimetric	M	M	M	
00930	Sodium	AA		M	M	M
00945	Sulfate-diss	Colorimetric	M	M	M	
70301	Total Dissolved Solids	Calculated	M	M	M	
00010	Temp Water	Toluana	M	M	M	
00020	Temp Air	Toluene	M	N	M	
00076	Turbidity	Nephelometric	M	M	M	
80020	Uranium-diss	Fluorimetric	-	MC	-	
01090	Zinc-diss	AA		SA	SA	SA
01092	Zinc-tot/rec	AA-persulfate	A	A	A	

*Computer storage and retrieval system - USGS

Symbol: C-continuous; D-daily; M-monthly; MC-monthly composite; A-annually
 at high flow; SA-semi-annually at low and high flow; AA-atomic
 absorption; tot-total, rec-recoverable; diss-dissolved



SURFACE WATER QUALITY MONITORING STATIONS

POPLAR RIVER BASIN

061 R000 POPLAR RIVER AT INTERNATIONAL BORDER

WATER QUALITY DATA

DATE	TIME	BARO-METRIC						WEATHER (WMO CODE NUMBER)	STREAM-FLOW, INSTANTANEOUS (CFS)	TUR-BID- ITY (NTU)
		TEMPER- ATURE (DEG C) (00010)	TEMPER- ATURE, AIR (DEG C) (00020)	PRES-SURE (MM OF HG) (00025)	CLOUD COVER (PER- CENT) (00032)	WIND SPEED (MILES PER HOUR) (00035)				
MAR , 1985										
20...	1700	4.0	13.5	693	0	E.0	.00	241	1.3	
APR 09...	1510	10.5	20.0	695	0	E.0	.00	18	--	
MAY 15...	1100	14.0	15.0	701	0	E4.0	.00	7.5	2.5	
JUN 11...	1615	16.5	16.5	705	70	E7.0	1	4.1	3.3	
JUL 17...	1130	20.0	24.0	700	80	E7.0	1	.15	3.4	
AUG 16...	1030	11.5	9.0	699	--	E.0	63	.12	3.2	
SEP 11...	1315	11.0	14.0	704	80	E13.0	3	.13	6.3	
OCT 18...	1000	4.5	7.0	705	0	E.0	.00	8.1	5.0	
NOV 19...	1000	.0	-19.0	708	100	E7.0	3	1.6	6.0	
<hr/>										
DATE		SPE-CIFIC (PLAT-INUM- DUCT-COBALT UNITS) (00080)	OXYGEN, CON-SOLVED (00095)	OXYGEN, DIS-SOLVED (00300)	OXYGEN, (PER- CENT) (00301)	CARBON DIoxide (STAND- ARD UNITS)	ALKALI- NITY (MG/L AS CO ₂) (00400)	NITRO- GEN, ORGANIC FIELD (MG/L AS CACO ₃) (00410)	NITRO- GEN, TOTAL (MG/L AS N) (00605)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)
		(US/CM)	(00095)	(00300)	(00301)	(00400)	(00405)	(00410)	(00605)	(00610)
MAR , 1985										
20...	70	336	6.6	55	7.8	3.9	128	1.6	.100	
APR 09...	--	689	10.4	103	8.0	4.3	222	1.3	.020	
MAY 15...	30	1,240	8.6	91	8.4	3.0	392	.75	.050	
JUN 11...	45	1,320	13.6	151	8.6	2.4	511	.93	.070	
JUL 17...	60	1,820	5.2	63	9.2	.5	464	1.1	.070	
AUG 16...	55	2,000	8.4	85	8.8	.6	--	1.1	.060	
SEP 11...	100	1,820	8.7	86	8.4	3.9	512	1.6	.060	
OCT 18...	40	762	10.0	84	8.5	2.7	--	.68	.120	
NOV 19...	25	1,330	7.8	58	8.1	8.1	--	.34	.060	

POPLAR RIVER BASIN

FEBRUARY 1986 - INTERNATIONAL BOARD OF REGULATORS

WATER QUALITY DATA

DATE	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO ₂ +NO ₃ TOTAL (MG/L AS N) (00630)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	HARD-NESS, NONCARBONIC (MG/L AS CACO ₃) (00900)	HARD-NESS, BONATE (MG/L CACO ₃) (00902)	CALCIUM, DISOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DISOLVED (MG/L AS MG) (00925)
MAR , 1985									
20...	.020	1.7	.20	.200	16	120	0	23	15
APR 09...	<.010	1.3	<.10	.050	--	230	9	43	30
MAY 15...	<.010	.80	<.10	.030	--	310	0	42	49
JUN 11...	<.010	1.0	<.10	.020	--	290	0	27	53
JUL 17...	<.010	1.2	<.10	.060	13	250	0	15	51
AUG 16...	<.010	1.2	<.10	.030	--	280	0	27	52
SEP 11...	<.010	1.7	<.10	.060	--	330	0	43	54
OCT 18...	<.010	.80	<.10	.020	--	310	0	49	45
NOV 19...	<.010	.40	<.10	.020	--	380	0	63	54
MAR , 1985									
20...	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	PERCENT SODIUM (00932)	POTAS-SIUM, DIS- SOLVED (MG/L AS K) (00935)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO ₄) (00945)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO ₂) (00955)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)
APR 09...	29	1	33	8.9	2.6	40	.20	9.3	2
MAY 15...	66	2	37	7.6	3.6	96	.30	10	--
JUN 11...	170	4	54	7.1	6.2	200	.40	6.8	--
JUL 17...	210	5	61	7.9	5.8	230	.40	.6	--
AUG 16...	380	11	76	9.3	12	400	.60	.4	7
SEP 11...	370	10	73	8.4	12	450	.60	.9	--
OCT 18...	320	8	67	9.7	13	340	.40	9.1	--
NOV 19...	160	4	52	8.1	6.1	180	.40	8.7	--
	160	4	47	7.7	6.8	190	.50	14	--

POPLAR RIVER BASIN

06178000 POPLAR INTERNATIONAL MINE

WATER QUALITY DATA

DATE	ARSENIC TOTAL (UG/L) AS AS (01002)	BERYL- LIUM, DIS- SOLVED (UG/L) AS BE (01010)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L) AS BE (01012)	BORON, DIS- SOLVED (UG/L) AS B (01020)	CADMIUM DIS- SOLVED (UG/L) AS CD (01025)	CADMIUM TOTAL RECOV- ERABLE (UG/L) AS CD (01027)	CHRO- MIUM, DIS- SOLVED (UG/L) AS CR (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L) AS CR (01034)	COPPER, DIS- SOLVED (UG/L) AS CU (01040)
MAR , 1985									
20...	2	<.5	10	200	1	<1	<10	20	3
APR									
09...	--	--	--	390	--	--	--	--	--
MAY									
15...	--	--	--	960	--	--	--	--	--
JUN									
11...	--	--	--	1,200	--	--	--	--	--
JUL									
17...	--	<.5	--	2,000	<1	--	<10	--	<1
AUG									
16...	--	--	--	1,900	--	--	--	--	--
SEP									
11...	--	--	--	2,200	--	--	--	--	--
OCT									
18...	--	--	--	990	--	--	--	--	--
NOV									
19...	--	--	--	1,100	--	--	--	--	--
DATE	COPPER, TOTAL RECOV- ERABLE (UG/L) AS CU (01042)	IRON, TOTAL RECOV- ERABLE (UG/L) AS FE (01045)	IRON, DIS- SOLVED (UG/L) AS FE (01046)	LEAD, DIS- SOLVED (UG/L) AS PB (01049)	LEAD, TOTAL RECOV- ERABLE (UG/L) AS PB (01051)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L) AS MN (01055)	MANGA- NESE, DIS- SOLVED (UG/L) AS MN (01056)	NICKEL, TOTAL RECOV- ERABLE (UG/L) AS NI (01065)	NICKEL, TOTAL RECOV- ERABLE (UG/L) AS NI (01067)
MAR , 1985									
20...	7	710	150	<1	<1	70	37	3	5
APR									
09...	--	--	76	--	--	--	--	--	--
MAY									
15...	--	--	44	--	--	--	--	--	--
JUN									
11...	--	--	30	--	--	--	--	--	--
JUL									
17...	--	--	42	<1	--	--	12	2	--
AUG									
16...	--	--	44	--	--	--	--	--	--
SEP									
11...	--	--	130	--	--	--	--	--	--
OCT									
18...	--	--	39	--	--	--	--	--	--
NOV									
19...	--	--	15	--	--	--	--	--	--

POPLAR RIVER BASIN

1617A
WATER AT INTERNATIONAL CITY
ONE QUARTER MILE

DATE	TIME	BARO-METRIC		CLOUD COVER (MM OF HG)	WIND SPEED (MILES PER HOUR)	WEATHER CODE (WMO)	INSTANTANEOUS STREAMFLOW (CFS)	TURBIDITY (NTU)	COLOR (PLATINUM COBALT UNITS)		
		TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	(PERCENT) (00025)	(00032)	(00035)	(00041)	(00061)	(00076)		
JAN , 1985											
15...	1000	.0	-10.0	692	75	E.0	1	2.8	--		
FEB											
13...	1230	.0	-7.0	706	0	E10	.00	3.0	1.2		
MAR									5		
14...	1130	.0	1.0	700	0	E8.0	.00	2.9	3.0		
APR									35		
17...	0900	10.0	15.0	690	0	E.0	.00	3.2	6.5		
MAY									20		
14...	1445	13.0	18.0	696	0	E.0	.00	9.2	5.5		
JUN									25		
11...	1055	14.0	24.0	707	75	E12.0	2	4.1	4.6		
11...	1100	14.0	24.0	707	75	E12.0	2	4.1	4.1		
11...	1105	14.0	24.0	707	75	E12.0	2	4.1	4.4		
JUL									20		
17...	0930	20.0	20.0	700	80	E7.0	1	2.2	3.9		
AUG									25		
15...	1430	15.5	15.0	699	100	E.0	62	1.9	2.8		
SEP									20		
12...	0830	12.5	14.5	699	100	E15.0	51	2.4	4.5		
OCT									25		
17...	1400	7.0	11.5	696	0	--	.00	2.5	20		
NOV									10		
18...	1300	.0	-15.0	706	100	E11.0	3	2.3	2.0		
									7		
DATE	SPECIFIC CONDUCTANCE (US/CM) (00095)	OXYGEN, DIS-SOLVED OXYGEN, (MG/L) (00300)		PH SATUR-ATION (00301)	PH (STAND-ARD UNITS) (00400)	LAB (STAND-ARD UNITS) (00403)	CARBON DIOXIDE AS CO2 (00405)	ALKALINITY FIELD AS CACO3 (00410)	NITROGEN, TOTAL AS N (00600)	NITROGEN, ORGANIC TOTAL AS N (00605)	NITROGEN, AMMONIA TOTAL (MG/L) (00610)
		DIS-SOLVED (PERCENT) (00301)	SATUR-ATION (00301)								
JAN , 1985											
15...	1,470	5.4	41	7.7	7.6	22	575	--	.36	.840	
FEB											
13...	1,500	5.4	40	7.5	7.3	40	650	1.5	.20	1.20	
MAR											
14...	1,290	9.6	72	7.8	7.9	16	526	1.1	.42	.580	
APR											
17...	1,500	8.2	81	8.1	8.3	9.0	590	--	--	.040	
MAY											
14...	1,280	9.1	95	8.3	8.5	3.8	394	--	1.5	.120	
JUN											
11...	1,470	11.3	119	8.5	8.4	2.9	--	--	.66	.040	
11...	1,470	11.3	119	8.5	8.4	2.8	--	--	.56	.040	
11...	1,470	11.3	119	8.5	8.4	2.8	--	--	.55	.050	
JUL											
17...	1,400	5.0	60	8.1	8.0	7.2	469	--	.87	.130	
AUG											
15...	1,400	8.0	88	8.4	8.4	3.5	458	--	.58	.120	
SEP											
12...	1,500	7.4	76	8.2	8.3	5.4	444	--	.73	.070	
OCT											
17...	1,500	7.0	63	8.3	8.1	4.8	--	.90	.53	.270	
NOV											
18	1,220	6.7	50	7.6	7.7	29	--	1.1	.18	.820	

POPLAR RIVER BASIN

OCT 18 1966 PAGE 100 OF 110
U.S. INTERNATIONAL BUREAU OF REACTIONS
QUALITY DATA

DATE	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO ₂ +NO ₃ TOTAL (MG/L AS N) (00630)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	HARD-NESS (MG/L AS CACO ₃) (00900)	HARD-NESS, NONCARBON (MG/L AS CACO ₃) (00902)	MAGNE- SIUM, SOLVED (MG/L AS MG) (00915)	SODIUM, SOLVED (MG/L AS NA) (00925)	
JAN , 1965											
15...	<.010	--	1.2	<.10	.020	--	390	0	79	47	190
FEB											
13...	<.010	--	1.4	.10	<.010	--	410	0	87	46	170
MAR											
14...	<.010	--	1.0	.10	.010	--	350	0	68	43	170
APR											
17...	<.010	--	.80	<.10	.040	--	390	0	70	52	210
MAY											
1...	.020	--	1.6	<.10	.040	--	310	0	48	46	180
JUN											
11...	<.010	--	.70	<.10	.030	5.6	360	0	57	54	220
11...	<.010	--	.60	<.10	.030	8.2	350	0	54	53	210
11...	<.010	--	.60	<.10	.030	5.4	350	0	54	53	210
JUL											
17...	<.010	--	1.0	<.10	.030	--	340	0	51	51	210
AUG											
15...	<.010	--	.70	<.10	.020	--	350	0	56	51	200
SEP											
12...	<.010	--	.80	<.10	.020	5.7	380	0	69	50	200
OCT											
17...	.020	.08	.80	.10	.010	--	410	0	77	52	200
NOV											
18...	.010	.09	1.0	.10	.020	--	420	0	86	49	200
<hr/>											
DATE	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED PERCENT SODIUM (00932)	CHLO- RIDE, DIS- SOLVED (MG/L AS K) (00935)	SULFATE DIS- SOLVED (MG/L AS CL) (00940)	FLOO- RIDE, DIS- SOLVED (MG/L AS SO ₄) (00945)	SILICA, DIS- SOLVED (MG/L AS F) (00950)	ARSENIC SUS- PENDED (UG/L AS AS) (00955)	ARSENIC TOTAL (UG/L AS AS) (01000)	ARSENIC TOTAL (UG/L AS AS) (01001)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01002)	
JAN , 1965											
15...	4	51	7.0	6.2	280	.30	15	--	--	--	--
FEB											
13...	4	47	7.4	5.8	270	.30	14	--	--	--	--
MAR											
14...	4	51	7.4	5.7	260	.30	13	--	--	--	--
APR											
17...	5	53	7.9	6.4	290	.30	8.7	--	--	--	--
MAY											
14...	5	55	13	6.3	240	.30	4.5	--	--	--	--
JUN											
11...	5	56	7.1	5.7	310	.30	11	5	1	6	<.5
11...	5	56	8.3	5.9	310	.30	11	5	--	--	--
11...	5	56	10	5.9	310	.30	11	5	--	--	--
JUL											
17...	5	57	4.6	6.9	290	.30	9.9	--	--	--	--
AUG											
15...	5	55	7.2	5.6	290	.30	8.0	--	--	--	--
SEP											
12...	5	53	7.7	6.2	280	.30	11	2	--	--	<.5
OCT											
17...	4	51	8.0	6.6	300	.30	10	--	--	--	--
NOV											
18...	4	51	7.6	6.1	280	.40	15	--	--	--	--

POPLAR RIVER BASIN

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA

POPLAR RIVER BASIN

17x51.

POPLAR RIVER AT INTERNATIONAL BORDER-10

REFERENCES

DATE	ZINC, TOTAL ERABLE	ALUM- INUM, DIS- SOLVED	SELE- NIUM, DIS- SOLVED	SELE- NIUM, TOTAL	SOLIDs, SUM OF CONSTITUENTS, SOLVED	SOLIDs, DIS- SOLVED	SOLIDs, DIS- (TONS PER DAY)	SOLIDs, DIAM. (TONS PER AC-FT)	SED. SIEVE % FINE .062 MM (70331)
	(UG/L (UG/L (UG/L (UG/L (01092) AS ZN) AS AL)	(01106) AS SE)	(01145) AS SE)	(01147)	(70301)	(70302)	(70303)		
JAN , 1985									
15...	--	--	--	--	970	7.3	1.3	69	
FEB									
13...	--	--	--	--	990	8.0	1.3	61	
MAR									
14...	--	--	--	--	880	6.9	1.2	69	
APR									
17...	--	--	--	--	1,000	8.6	1.4	47	
MAY									
14...	--	--	--	--	780	19	1.1	74	
JUN									
11...	<10	--	<1	<1	950	11	1.3	--	
11...	<10	<10	<1	--	930	10	1.3	78	
11...	<10	<10	<1	--	940	10	1.3	--	
JUL									
17...	--	--	--	--	910	5.4	1.2	62	
AUG									
15...	--	--	--	--	890	4.6	1.2	79	
SEP									
12...	--	<10	<1	--	890	5.7	1.2	70	
OCT									
17...	--	--	--	--	950	6.4	1.3	--	
NOV									
18...	--	--	--	--	1,000	6.2	1.4	--	

DATE	PHOS-	PHOS-	NITRO-	SEDI-	SEDI-	SPE-	ALMA-	HARD-
	PHORUS,	PHORUS	GEN,	MENT,	DIS-	CIFIC		
	ORTHO,	TOTAL	TOTAL	SUS-	CHARGE,	CON-	LAB	BONATE
	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(T/DAY)	DUCT-	(MG/L)	(MG/L)
	(AS P)	(70507)	(AS PO4)	(71886)	(71887)	PENDED	LAB	AS
				(80154)	(80155)	(US/CM)	(CACO3)	(CACO3)
						(90095)	(90410)	(95902)
JAN , 1985								
15...	<.010	--	--	18	.14	1,470	547	0
FEB								
13...	<.010	--	6.6	19	.15	1,460	495	0
MAR								
14...	<.010	--	4.9	59	.46	1,280	467	0
APR								
17...	.010	--	--	132	1.1	1,480	503	--
MAY								
14...	<.010	--	--	116	2.9	1,310	455	0
JUN								
11...	<.010	.09	--	--	--	1,450	473	0
11...	<.010	.09	--	72	.80	1,450	459	0
11...	<.010	.09	--	--	--	1,450	472	0
JUL								
17...	<.010	.09	--	67	.40	1,460	469	0
AUG								
15...	<.010	.06	--	38	.19	1,410	448	0
SEP								
12...	<.010	.06	--	41	.26	1,480	508	0
OCT								
18...	.010	.03	4.0	--	--	1,510	498	0
NOV								
18...	.030	.06	4.9	--	--	1,600	588	0

VERBASTA

1. THE VARIOUS FORMS OF VERBATION ON THE DAY

VERBATION

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	OEC
1	1320	1470	1350	1360	1390	1390	1400	1450	1370	1400	1400	1560
2	1370	1480	1180	1230	1380	1420	1410	1390	1390	1410	1420	1520
3	1340	1470	1270	1160	1400	1410	1420	1390	1390	1400	1400	1520
4	1350	1450	1380	1210	1400	1440	1430	1380	1400	1390	1400	1440
5	1270	1450	1430	1310	1380	1470	1440	1380	1400	1390	1410	1470
6	1350	1440	1400	1360	1380	1470	1440	1390	1400	1400	1430	1470
7	1340	1440	1400	1380	1340	1460	1430	1400	1380	1430	1440	1440
8	1330	1440	1330	1380	1320	1470	1450	1420	1340	1410	1490	1430
9	1390	1430	1310	1370	1340	1480	1450	1430	1370	1400	1550	1420
10	1390	1420	1290	1360	1360	1420	1440	1430	1380	1410	1620	1410
11	1380	1430	1360	1360	1340	1400	1430	1410	1410	1430	1680	1450
12	1430	1440	1340	1400	1310	1400	1420	1400	1400	1410	1660	1490
13	1390	1440	1320	1420	1270	1350	1430	1370	1410	1420	1620	1530
14	1370	1440	1300	1440	1280	1360	1420	1360	1410	1400	1590	1560
15	1390	1440	1290	1420	1280	1390	1410	1370	1410	1420	1560	1520
16	1360	1420	1290	1430	1280	1390	1410	1370	1420	1460	1530	1510
17	1370	1410	1270	1440	1280	1410	1410	1390	1440	1460	1470	1460
18	1370	1460	1170	1440	1270	1400	1410	1390	1440	1470	1560	1450
19	1580	1440	1170	1440	1280	1390	1410	1390	1440	1470	1600	1470
20	1520	1430	1160	1490	1280	1360	1400	1360	1410	1480	1640	1470
21	1540	1430	1140	1560	1270	1350	1410	1380	1420	1500	1700	1450
22	1480	1430	1110	1620	1270	1410	1400	1400	1400	1500	1750	1450
23	1440	1370	1210	1630	1260	1400	1400	1390	1390	1500	1750	1450
24	1440	1400	1380	1600	1270	1410	1410	1400	1390	1470	1770	1440
25	1410	770	1390	1580	1260	1390	1390	1400	1400	1470	1780	1470
26	1420	805	1310	1560	1320	1390	1390	1400	1410	1470	1770	1500
27	1440	1310	1260	1560	1360	1390	1380	1420	1400	1470	1760	1480
28	1430	1440	1280	1480	1290	1390	1390	1410	1400	1480	1750	1470
29	1430	---	1340	1430	1300	1400	1390	1410	1400	1470	1750	1520
30	1470	---	1400	1430	1280	1420	1400	1420	1420	1460	1740	1530
31	1560	---	1420	---	1360	---	1420	1410	---	1460	---	1520

POPLAR RIVER BASIN

U6179000 EAST FORK POPLAR RIVER NEAR SCOBY, MT.

WATER QUALITY DATA

DATE	TIME	BARO-METRIC PRES-								STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TUR-BI-O- ITY (NTU) (00076)
		TEMPER- ATURE (DEG C) (00010)	TEMPER- ATURE, AIR (DEG C) (00020)	SURE (MM HG) (00025)	CLOUD COVER (PER- CENT) (00032)	WINO SPEED (MILES PER HOUR) (00035)	WEATHER (WMO CODE NUMBER) (00041)				
JAN, 1985											
15...	1230	.0	.0	694	100	E.0	3	.50	--		
MAR											
14...	0915	.0	.0	703	0	E.0	.00	6.3	6.2		
APR											
17...	1045	9.5	19.0	691	0	E.0	.00	6.5	3.4		
MAY											
14...	1630	16.0	22.0	698	0	E.0	.00	12	5.4		
JUN											
12...	1515	16.0	21.0	700	50	E12.0	1	2.7	5.0		
JUL											
16...	1600	23.0	26.0	702	0	E3.0	.UU	.30	4.3		
AUG											
15...	1600	15.0	14.0	700	100	E.0	62	2.5	2.8		
SEP											
11...	1530	12.0	15.0	706	80	E15.0	3	3.5	4.1		
OCT											
17...	1600	7.5	12.0	699	0	E7.0	.00	4.5	9.0		
NOV											
18...	1500	.0	-15.0	707	100	E10.0	3	2.1	2.7		
OZONE,											
DATE	COLOR (PLAT- INUM- DUCT- COBALT UNITS) (00080)	SPE- CIFIC CON- SOLVED (MG/L) (00095)	OXYGEN, DIS- SOLVED (00300)	DIS- SOLVED (PER- CENT) (00301)	PH (STANO- ARD SATUR- ATION) (00400)	PH (STANO- ARD UNITS) (00403)	LAB (STANO- ARD UNITS) (00403)	DIOXIOE CARBON SOLVED (MG/L AS CO2) (00405)	ALKALI- NITY FIELD SOLVED (MG/L AS CACO3) (00410)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, AMMONI TOTAL (MG/L AS N) (00610)
JAN, 1985											
15...	--	3,100	1.0	8	7.8	7.7	28	907	.68	.520	
MAR											
14...	60	852	6.7	50	7.7	7.8	13	343	.90	.10	
APR											
17...	25	872	10.2	99	8.1	8.4	5.1	333	.81	.29	
MAY											
14...	40	1,620	9.0	100	8.5	8.6	2.7	440	1.2	.070	
JUN											
12...	30	740	10.6	117	8.9	8.9	1.0	445	.93	.070	
JUL											
16...	40	1,660	10.4	133	9.2	9.4	.4	376	1.3	.070	
AUG											
15...	65	1,820	6.4	70	9.2	9.2	.6	486	1.9	.050	
SEP											
11...	45	1,550	9.6	97	9.1	9.1	.6	421	1.3	.050	
OCT											
17...	30	1,380	11.7	107	8.8	8.7	1.4	--	.52	.08	
NOV											
18...	20	1,940	10.5	78	8.4	8.3	4.6	--	.56	.04	

POPLAR RIVER BASIN

06179000 EAST FORK POPLAR RIVER NEAR SCOBY, MT.--Ce * Uned

CHEMICAL QUALITY DATA

DATE	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO ₂ +NO ₃ TOTAL (MG/L AS N) (00630)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	HARD-NESS, NONCARBONATE (MG/L AS CACO ₃) (00900)	HARD-NESS, BONATE (MG/L AS CACO ₃) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS-SOLVED (MG/L AS MG) (00925)
JAN , 1985									
15...	<.010	1.2	<.10	.030	--	780	0	130	110
MAR									
14...	.030	1.0	.30	.050	--	240	0	47	29
APR									
17...	<.010	1.1	<.10	.030	6.6	210	0	36	29
MAY									
14...	<.010	1.3	<.10	.080	--	340	0	43	57
JUN									
12...	<.010	1.0	<.10	.020	--	280	0	25	52
JUL									
16...	<.010	1.4	<.10	.060	--	290	0	16	61
AUG									
15...	<.010	1.9	<.10	.040	--	280	0	18	57
SEP									
11...	<.010	1.3	<.10	.030	11	290	0	21	57
OCT									
17...	<.010	.6D	<.10	.020	--	300	0	34	52
NOV									
18...	<.010	.60	<.10	.020	--	380	0	49	63
DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORPTION RATION (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00932)	CHLO- RIDE, DIS-SOLVED (MG/L AS CL) (00935)	SULFATE DIS-SOLVED (MG/L AS SO ₄) (00940)	FLUO- RIDE, DIS-SOLVED (MG/L AS F) (00945)	SILICA, DIS-SOLVED (MG/L AS SIO ₂) (00950)	ARSENIC (UG/L AS AS) (01000)	
JAN , 1985									
15...	460	7	56	16	14	580	.40	24	--
MAR									
14...	110	3	49	8.3	4.8	160	.20	11	--
APR									
17...	120	4	55	5.6	4.5	160	.20	4.D	<1
MAY									
14...	260	6	62	9.0	8.8	350	.30	8.2	--
JUN									
12...	230	6	63	11	6.8	290	.30	.9	--
JUL									
16...	290	7	67	13	9.7	360	.40	5.1	--
AUG									
15...	310	8	70	10	9.5	420	.40	2.1	--
SEP									
11...	250	6	65	8.2	7.7	310	.3D	1.3	6
OCT									
17...	220	6	61	7.4	12	32D	.30	3.0	--
NOV									
18...	270	6	60	9.5	11	360	.40	2.6	--

POPLAR RIVER BASIN

06179000 AS1 FOR POPLAR RIVER NEAR SCOBY, MI. -Continued

WATER QUALITY DATA

DATE	ARSENIC TOTAL (UC/L AS AS) (01002)	BERYL-		BORON, DIS- ERABLE (UC/L AS BE) (01010)	CADMIUM TOTAL (UG/L AS BE) (01012)	CADMIUM TOTAL (UG/L AS B) (01020)	CHRO- MIUM, TOTAL (UG/L AS CR) (01027)	CHRO- MIUM, TOTAL (UG/L AS CR) (01030)	CHRO- MIUM, TOTAL (UG/L AS CR) (01034)	COPPER, DIS- SOLVED (UC/L AS CU) (01040)
		BERYL- LIUM, TOTAL SOLVED (UG/L AS BE) (01010)	BERYL- LIUM, TOTAL SOLVED (UG/L AS BE) (01012)							
JAN , 19B5 15...	--	--	--	3,600	--	--	--	--	--	--
MAR 14...	--	--	--	850	--	--	--	--	--	--
APR 17...	2	<.5	<10	810	<1	<1	10	40	1	
MAY 14...	--	--	--	2,000	--	--	--	--	--	--
JUN 12...	--	--	--	1,600	--	--	--	--	--	--
JUL 16...	--	--	--	2,100	--	--	--	--	--	--
AUC 15...	--	--	--	2,400	--	--	--	--	--	--
SEP 11...	--	<.5	--	2,200	<1	--	<10	--	--	1
OCT 17...	--	--	--	1,800	--	--	--	--	--	--
NOV 18...	--	--	--	2,200	--	--	--	--	--	--
DATE	COPPER, TOTAL RECOV- ERABLE (UC/L AS CU) (01042)	IRON, TOTAL RECOV- ERABLE (UC/L AS FE) (01045)	IRON, DIS- ERABLE (UC/L AS FE) (01046)	LEAD, DIS- ERABLE (UG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANCA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	
JAN , 19B5 15...	--	--	70	--	--	--	--	--	--	--
MAR 14...	--	--	100	--	--	--	--	--	--	--
APR 17...	7	360	51	<1	<1	40	19	3	1	
MAY 14...	--	--	21	--	--	--	--	--	--	--
JUN 12...	--	--	37	--	--	--	--	--	--	--
JUL 16...	--	--	43	--	--	--	--	--	--	--
AUC 15...	--	--	58	--	--	--	--	--	--	--
SEP 11...	--	--	33	1	--	--	10	<1	--	--
OCT 17...	--	--	13	--	--	--	--	--	--	--
NOV 18...	--	--	18	--	--	--	--	--	--	--

POPLAR RIVER BASIN

06179000 EAST FOR POPLAR RIVER NEAR SCOBY, MI - Continued

QUALITY DATA

DATE	ZINC, TOTAL (OG/L)	ZINC, AS ZN (01U90)	ALOM- RECOV- ERABLE (UG/L)	ALUM, AS AL (01092)	SELE- NIUM, SOLVED (OG/L)	SELE- NIUM, SOLVED (OG/L)	SOLID, CONSTI- TOENTS, TOTAL (OG/L)	SUM OF DIS- SOLVED (TONS)	SOLID, DIS- SOLVED (MG/L)	SOLID, PER DAY)
	(01106)	(01145)	(01147)	(70301)	(70302)					

JAN , 1985

15...	--	--	--	--	--	--	1,900	2.5
MAR								
14...	--	--	--	--	--	--	580	9.8
APR								
17...	4	<10	10	<1	<1	<1	560	9.8
MAY								
14...	--	--	--	--	--	--	1,000	32
JUN								
12...	--	--	--	--	--	--	880	6.4
JUL								
16...	--	--	--	--	--	--	980	.80
AUG								
15...	--	--	--	--	--	--	1,100	7.6
SEP								
11...	10	--	<10	<1	--	--	910	8.5
OCT								
17...	--	--	--	--	--	--	940	11
NOV								
18...	--	--	--	--	--	--	1,100	6.4

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SED. SIEVE DIAM. % FINE THAN .062 MM	SOSP. PHOS- ORTH TOTAL (MG/L)	PHOS- PHORUS, TOTAL (MG/L)	PHOS- PHORUS, TOTAL (MG/L)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, CHARGE, SUS- PENDED (MG/L)	SED- IMENT, DOC- PENDED (T/DAY)	SPE- CIFIC CON- TANCE (US/CM)	ALKA- LINITY LAB AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3) (95902)
	(70303)	(70331)	(70507)	(71886)	(80154)	(80155)	(90095)	(90410)			

JAN , 1985

15...	2.5	54	.010	--	84	.11	2,860	820	0
MAR									
14...	.78	--	.020	--	--	--	886	318	0
APR									
17...	.76	50	.010	--	71	1.2	841	280	0
MAY									
14...	1.4	70	<.010	--	96	3.1	1,660	534	0
JUN									
12...	1.2	68	<.010	.06	46	.34	1,410	447	0
JUL									
16...	1.3	29	<.010	.18	55	.04	1,670	544	0
AUG									
15...	1.5	47	<.010	.12	11	.07	1,800	543	0
SEP									
11...	1.2	75	<.010	.09	13	12	1,540	498	0
OCT									
17...	1.3	--	.010	.06	--	--	1,480	478	0
NOV									
18...	1.5	--	.010	.06	--	--	1,810	598	0

GROUND WATER LEVELS TO MONITOR

POTENTIAL DRAWDOWN DUE TO

COAL SEAM DEWATERING

Responsible Agency: Montana Bureau of Mines and Geology

No. on Map

Sampling

2 to 22

Determine water levels
quarterly



GROUND WATER PIEZOMETERS TO MONITER POTENTIAL

DRAWDOWN DUE TO COAL SEAM DEWATERING

Ground-water level measurements

Well no.	Depth to water (feet)			
	March 14, 1985	May 25, 1985	Aug. 20 1985	Nov. 25 1985
2	217.99	--	218.0	--
3	81.75	81.72	81.94	81.80
4	60.80	60.74	60.72	60.71
5	21.02	20.83	20.76	20.64
6	21.53	21.30	21.22	21.13
7	78.96	77.75	78.52	78.87
8	13.48	14.03	14.47	14.07
9	14.07	14.51	15.01	14.61
10	6.22	5.95	6.44	6.26
11	---	-0.85	-0.9	--
12	dry	dry	dry	dry
13	134.99	135.73	135.07	135.07
14	211.87	212.48	212.58	212.11
15	224.56	229.07	224.72	224.76
16	31.59	31.75	---	41.45
17	247.78	247.93	248.15	247.87
18	215.28	214.47	---	247.79
19	126.11	126.23	126.35	126.30
20	dry	0	dry	dry
21	---	242.23	240.88	240.67
22	18.86	18.49	18.29	18.14

